

Cosmic Cartography 2022: Exploring the Cosmic Web and Large-Scale Structure



Contribution ID: 17

Type: **not specified**

Cosmic Web in Diffuse Light Data

Tuesday, 8 March 2022 14:00 (20 minutes)

The cosmic web emits photons at all wavelengths. Immediately beyond the local Universe, an increasing fraction of these photons would be in the diffuse radiation field as opposed to individually detected sources. This is especially true in relatively shallow, wide-field surveys. Thanks to the collective effort of the community, all-sky images, or intensity maps, now exist in over 18 orders of magnitude in wavelength from radio to gamma-ray. In this talk, I will introduce a tomographic intensity mapping technique that can unlock the use of a large number of diffuse photons in legacy or future sky survey datasets. I will demonstrate with intensity maps from GALEX, IRAS, and Planck to probe the cosmic Ultraviolet, Infrared, and the Sunyaev-Zeldovich effect background originated from different sources in the large-scale structures over the history of the Universe.

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Session Classification: Day 2 Afternoon